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SCIENCE NEWS SPACE MISSIONS

GALEX Will Look Ahead to the Past

A new space telescope will shed light on galactic history.

by Matt Quandt

A new NASA [telescope](#) will soon act as a kind of reverse crystal ball. Set to lift off from Cape Canaveral, Florida, at 7:50 a.m. EDT on Monday, April 28, the [Galaxy](#) Evolution Explorer (GALEX) will provide scientists with a view into the cosmic past of galaxies.

The spacecraft and its three-stage Pegasus XL launch vehicle will be fastened to the body of an L-1011 aircraft and carried over the Atlantic Ocean to an [altitude](#) of 39,000 feet (11,900 meters). After the L-1011 releases the Pegasus, the rocket will fire and lift the scientific payload into Earth [orbit](#) — some 428 miles (690 kilometers) overhead.

After one month of in-orbit testing, GALEX will begin its 28-month scientific mission. Using its high-tech equipment to observe millions of galaxies, GALEX will probe 10 [billion](#) years of cosmic history in an attempt to reveal when galaxies originated.

"The Galaxy Evolution Explorer is crucial to understanding how galaxies, the basic structures of our [universe](#), form and function," said Anne Kinney, director of [astronomy](#) and physics in NASA's Office of Space Science in Washington, D.C.



Nicknamed GALEX, the Galaxy Evolution Explorer will spend more than two years studying the ultraviolet light from distant galaxies.
NASA / Caltech

Equipped with technologically advanced ultraviolet detectors, the spacecraft will be able to concentrate on young, hot galaxies that actively create stars and give off tremendous amounts of energy. As GALEX trains its eye on these young galaxies, it will witness the history and causes of galactic [star](#) formation. Recent observations suggest star formation peaked eight to 10 billion years ago. This mission is specifically designed to confirm this and investigate why it happened.

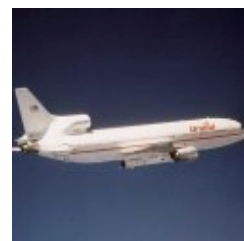
Scientists will also use data gathered by a [spectrometer](#) on GALEX to help determine distances — and consequently ages — of galaxies. Combining data from the ultraviolet detectors and the spectrometer, scientists will be able to learn when carbon, oxygen, and other chemical elements were created inside developing stars.

"This mission will provide the first comprehensive map of a universe of galaxies under construction and bring us closer to understanding how they, and our own [Milky Way](#), were built," said Christopher Martin, the mission's principal investigator and an astrophysicist at the California Institute of Technology.

Besides learning what factors trigger star formation inside galaxies, this mission will also determine how quickly stars develop inside each galaxy and when and how today's stars formed. The mission is also expected to discover and understand ultraviolet-bright quasars, while creating the first all-sky survey of the ultraviolet universe beyond the Milky Way.

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Orbital Science Corporation's L-1011 jet aircraft flies with a Pegasus rocket attached beneath it.
Orbital Sciences Corp.

Update: GALEX successfully reached Earth orbit Monday morning. The spacecraft's signal was obtained about 22 minutes after launch, and GALEX deployed its solar arrays as scheduled. After a month of tests, GALEX will begin its science mission in late May.

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